REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is requested. Claims 1-6, 10-17, and 20-24 are in this application. Claims 10-13 have been amended. Claims 9, 18, and 19 have been cancelled. Claims 23-24 have been added. Claims 14-22 have been allowed.

The Examiner rejected claims 9, 18, and 19 under 35 U.S.C. §112, first paragraph, as containing subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claims 9, 18, and 19 have been cancelled. Claim 12, however, has been amended to be in independent form and, as a result, includes the limitations of claim 9.

In rejecting claim 9 (claim 12), the Examiner argued that the "base extender" was not described in the specification. The base extender of claim 12 can be read to be, for example, polysilicon line 126. In addition, the "base region" of claim 12 can be read to be, for example, p-type base region 116 (e.g., a SiGe base), which is different from the polysilicon of line 126. (See page 6, lines 11-13 of applicant's specification.) Thus, since the base extender can be read to be line 126, claim 12 is believed to satisfy the requirements of the first paragraph of section 112.

The Examiner rejected claims 10-13 under 35 U.S.C. §102(b) as being anticipated by Applicant's Admitted Prior Art (AAPA). For the reasons set forth below, applicant respectfully traverses this rejection as applied to amended claim 12.

Claim 12 recites, in part,

> "the emitter having . . . a width,
> "the emitter contact . . . having a width that is greater than the width of the emitter, and
> "the base contact . . . having a width that is less than the width of the emitter contact."

In rejecting the claims, the Examiner pointed to emitter 18 of AAPA as constituting the emitter, emitter contact 28 as constituting the emitter contact, and base contact 24 as constituting the base contact. However, as shown in FIG. 1 of AAPA, emitter contact 28 does not have a width that is greater than the width of emitter 18. In addition, base contact 24 does not appear to have a width that is less than the width of emitter contact 28.

Thus, since AAPA does not teach an emitter contact that is wider than the emitter, and a base contact that is thinner than the emitter contact, claim 12 is not anticipated by AAPA. In addition, since dependent claims 10, 11, 13, 23, and 24 depend either directly or indirectly from claim 12, these claims are believed to be patentable for the same reasons as claim 12.

The Examiner rejected claims 1-6 under 35 U.S.C. §103(a) as being unpatentable over Lowrey et al. (U.S. Patent No. 5,581,104) in view of Delage et al. (U.S. Patent No. 6,031,255). The Examiner also rejected claim 2 under 35 U.S.C. §103(a) as being unpatentable over Lowrey et al. in view of Delage et al. and further in view of Leuschner (U.S. Patent No. 4,724,471). The Examiner further rejected claims 3-5 under 35 U.S.C. §103(a) as being unpatentable over Lowrey et al. in view of Delage et al. and further in view of Akram (U.S. Patent No. 6,075,288). For the reasons set forth below, applicant respectfully traverses these rejections.

In the amendment filed on January 16, 2002, applicant argued that the P+ region connected to Vcc shown in FIG. 8 of Lowrey can not be read to be the polysilicon emitter of claim 1 because Lowrey teaches the use of an n-type substrate. In response, the Examiner pointed to column 4, lines 8-15 of the Gaul reference (U.S. Patent No. 6,114,768) as teaching that both mono-crystalline and polycrystalline substrates are used in the art.

Applicant agrees that both mono-crystalline and polycrystalline substrates are known in the art, but this does not mean that these two materials are interchangeable substitutes in all circumstances. In the section cited by the Examiner, the Gaul reference teaches that a device wafer 10 is connected to a handle wafer 12. Handle wafer 12, however, is a sacrificial material that is subsequently removed (see column 5, lines 39-41).

As a result, when the Gaul reference teaches that "[H]andle wafer 12 may also be a semiconductor substrate, in particular silicon or may be any other suitable substrate such as

polysilicon, gallium arsenide, silicon carbide, diamond, etc," Gaul is teaching that these and other materials may be used as interchangeable substitutes when a sacrificial material is needed as an underlying material. (See column 4, lines 11-14 of Gaul.)

From what applicant can determine, Gaul does not teach that polysilicon, gallium arsenide, silicon carbide, and diamond are interchangeable substitutes for single-crystal silicon in all applications. For example, Gaul teaches that a diamond is an insulator (see column 4, lines 54-56). When used as a sacrificial material, a diamond may be used as a substitute for single-crystal silicon. However, it is difficult to imagine what would motivate one skilled in the art to form a bipolar transistor in an insulator (diamond) in lieu of single crystal silicon.

Thus, since Gaul only teaches that polysilicon, gallium arsenide, silicon carbide, and diamond are interchangeable substitutes for single-crystal silicon when used as a sacrificial material, and does not teach that bipolar transistors can be formed in polysilicon in lieu of silicon crystal silicon, claims 1-6 are believed to be patentable over Lowrey et al. in view of Delage et al., Lowrey et al. in view of Delage et al. and further in view of Leuschner, and Lowrey et al. in view of Delage et al. and further in view of Akram.

As a result, for the foregoing reasons, it is submitted that all of the claims are in a condition for allowance. Therefore, the Examiner's early re-examination and reconsideration are respectively requested.

Respectfully submitted,

Dated: 7-2-02 By: _____

Mark C. Pickering
Registration No. 36,239

Attorney for Applicant

30 Fifth Street, Suite 200
P.O. Box 300
Petaluma, CA 94953-0300
Direct Dial Telephone No. (707) 762-5583
Telephone: (707) 762-5500
Facsimile: (707) 762-1200

APPENDIX

In the Claims

Please cancel claims 9, 18, and 19.

Please amend the claims as follows:

10. (Amended) The device of claim [9] 12 wherein the top surface of the base contact lies in substantially the same plane as the top surface of the emitter contact.

11. (Amended) The device of claim [9] 12 wherein the base region has a first conductivity type, the emitter has a second conductivity type, and the base extender has the first conductivity type.

12. (Amended) [The device of claim 9 wherein] An electrostatic discharge device formed in a first semiconductor material, the device comprising:

a collector region of a first conductivity type formed in the first semiconductor material;

a base region of a second conductivity type formed in the collector region;

an emitter formed on the first semiconductor material on the base region, the emitter [has] having a top surface and a width[,];

a base extender formed on the first semiconductor material on the base region, the base extender being formed from a second semiconductor material that is different from the first semiconductor material;

a layer of dielectric material formed on the first semiconductor material on the base region;

an ohmic emitter contact formed through the dielectric layer, the emitter contact [has]having a top surface, contacting the top surface of the emitter, and having a width that is greater than the width of the emitter; and

an ohmic base contact formed through the layer of dielectric material, the base contact [has] having a top surface, contacting the top surface of the base extender, being electrically connected to the base region, and having a width that is less than the width of the emitter contact, the ohmic base contact being formed from a third semiconductor material different from the second semiconductor material.

13. (Amended) The device of claim [9] 12 wherein the emitter and the base extender are polysilicon.

Claims 23-24 have been added.